

Measuring Safety Performance

Guidelines for Service Providers



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The Document

- Initial release: 23 July 2013
- Available on: www.skybrary.aero/ (*insert path*)
- Objective:
 - To provide guidelines for the definition & implementation of a set of SPIs as part of your SMS
- Benefit:
 - Effective safety performance measurement will be an integral part of your SMS: it will support the identification of weaknesses and of opportunities for improvement not only related to safety, but also to efficiency and capacity.



Safety Performance & Operational Definitions

'A service provider's safety achievement as defined by its safety performance targets and safety performance indicators' ICAO Annex 19

Safety: how well **risk** is **managed** (state of being)



Safety performance: **capability** to **manage** risk



Measurement of safety management: capability in terms of **SM processes** (what)

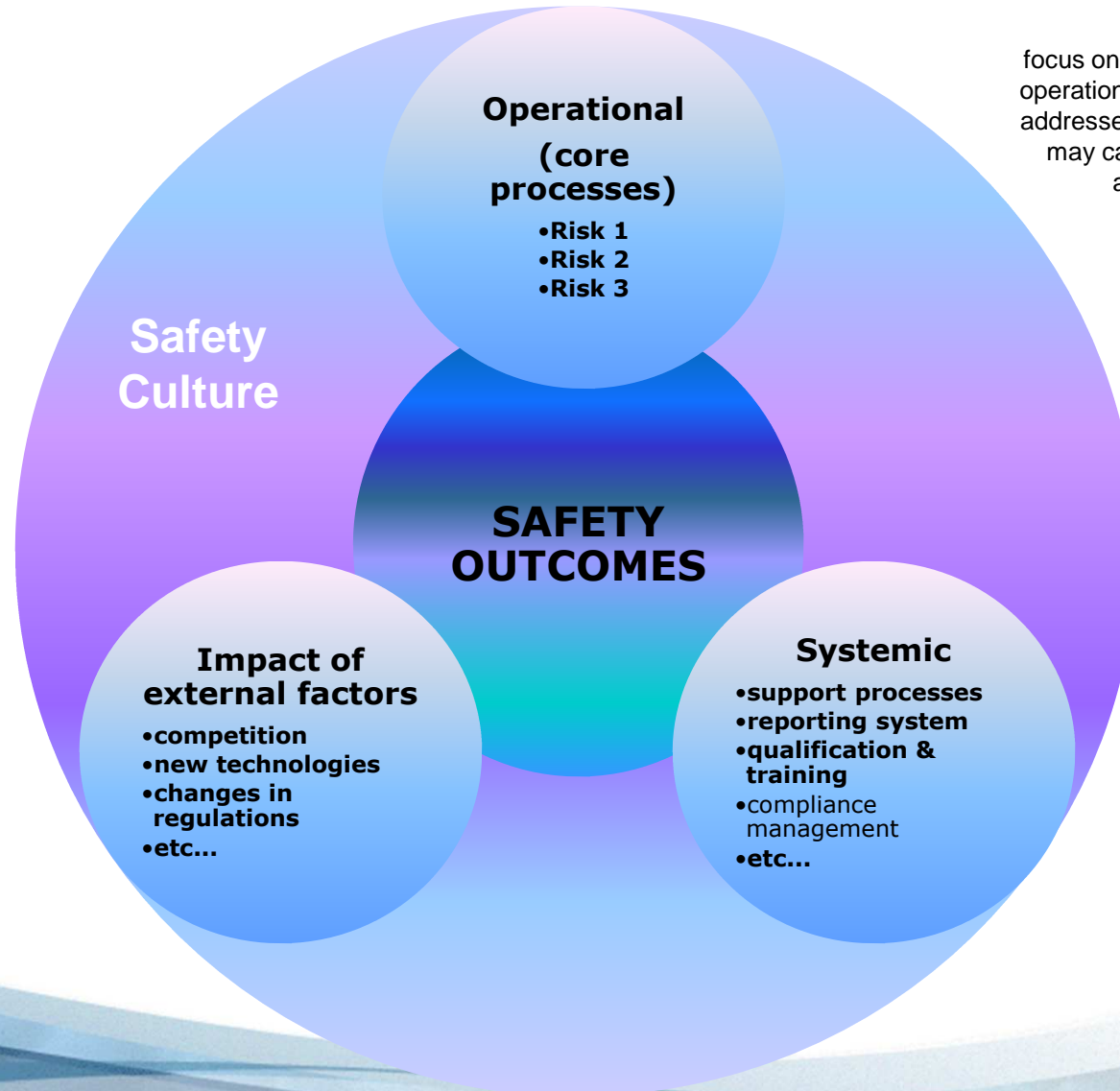


Process measurement (How – measurement strategy)

- **Process:** Leading/Lagging indicators
- **Outcome:** Ultimate benefits, results (Lagging indicators)



'Components' of Safety Performance



focus on the main risks in operations that need to be addressed (the things that may cause 'your next accident')

**Operational
(core processes)**

- Risk 1
- Risk 2
- Risk 3

Safety Culture

SAFETY OUTCOMES

Impact of external factors

- competition
- new technologies
- changes in regulations
- etc...

Systemic

- support processes
- reporting system
- qualification & training
- compliance management
- etc...

focus on system features intended to ensure safe outcomes (organizational enablers of safety outcomes)

measures also need to address how external factors may influence enabling elements, risk controls and barriers or how these controls and barriers influence each other



Why Measuring Safety Performance?

You can't manage what you can't measure (Drucker).

What gets measured gets managed.

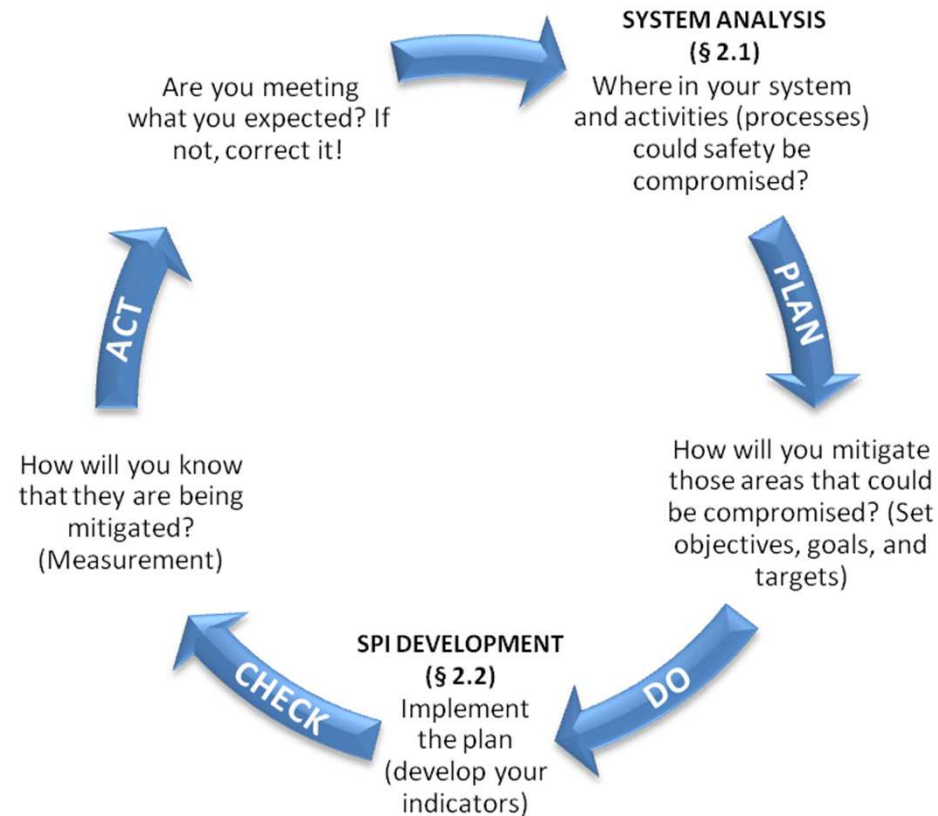
- **but...**

If you measure the wrong things, you'll manage the wrong things.

Careful measurement is essential in safety decision making!



Why Measuring Safety Performance? The Measurement Cycle



How to Measure...

- Select safety performance indicators that consider the type of feedback needed to ensure your company's capabilities for safety management can be properly evaluated and improved (feedback is an essential element of safety management).
- Measure performance:
 - *at all levels of your organization*
 - *by adopting a set of indicators involving key aspects of your system and operations and measuring those key aspects in different ways to gain a more accurate picture.*



Safety Performance Indicators

'A data-based safety parameter used for monitoring & assessing performance'

- Lagging indicators: measures of safety occurrences
- Leading indicators: should measure
 - things that have the potential to become or contribute to a negative outcome, and
 - (positive) things that contribute to safety
- Safety performance measurement should ideally consider a combination of leading and lagging indicators.

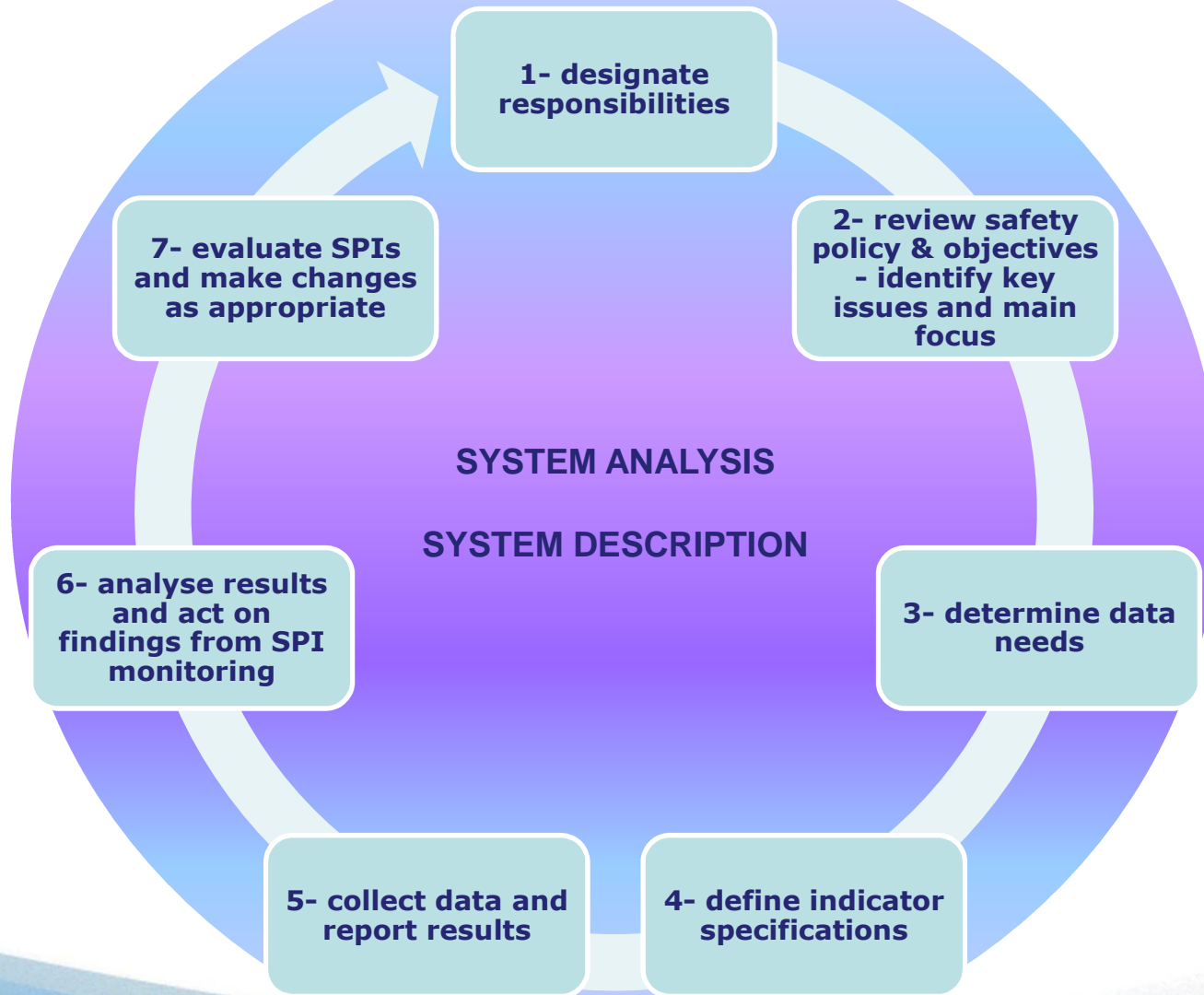


Developing SPIs – a process approach

- Prerequisite
 - Perform a system analysis (make use of existing material, e.g. process maps and procedures) :
 - generate an accurate & reliable description of your organizational structures, policies, procedures, processes, staff, equipment and facilities
 - analyse the interactions between system components and the impact of external factors
 - The resulting system description and the related model of how your activities lead to the expected outcomes will inform you on what to measure & monitor to drive safety performance
- Use a step-by-step process for developing your own set of SPIs.
- Ensure your set of SPIs is regularly reviewed and make changes as necessary.



Process to develop/review SPIs



Indicator examples

- Indicators for systemic issues:
 - Example of an indicator in the area of *compliance*:
 - measurement focuses on internal audits – compliance monitoring
 - metric: 'number of repeat findings within audit planning cycle'

- Indicators for operational issues:
 - Example of an indicator in the area of *air operations*:
 - high consequence negative outcome: traffic collision
 - metric: 'number of TCAS resolution advisories per 1000 FH'.

- Indicators to monitor external factors:
 - Example of an indicator in the area of regulations:
 - measurement focuses on new regulations
 - metrics 'number of new regulatory requirements that will affect your organization within the next 12 months'.



The SM ICG welcomes feedback on its products.

For further information regarding the SM ICG or to provide feedback, please contact [Régine Hamelijnck](#), [Amer Younossi](#), or [Jacqueline Booth](#).

